

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**1-5. (canceled)**

**6. (currently amended)** A method of detecting faults in high voltage circuits of an ionizer without affecting operation of said high voltage circuits, said method comprising the steps of:

sensing the voltage of said high voltage circuits by capacitively coupling a sensing circuit with said high voltage circuit; and

comparing the sensed voltage with a threshold voltage;

wherein said threshold voltage is preset.

**7. (original)** A method as in claim 6, further comprising the step of displaying an alarm if said sensed voltage is less than or equal to said threshold voltage.

**8. (currently amended)** A method as in claim 6, wherein said ionizer has a reference circuit ~~[(9)]~~ or an emitter circuit ~~[(8)]~~ and said sensing step includes capacitively coupling ~~(13, 14)~~ a sensing circuit ~~(13, 14)~~ with said reference circuit ~~(9)~~ or an or said emitter circuit ~~[(8)]~~.

**9. (canceled)**

10. (original) A method as in claim 6, further comprising the step of controlling said ionizer in response to said sensing step sensing a voltage less than or equal to said threshold voltage.

11. (previously presented) In combination, an ionizer having a high voltage circuit and a monitoring circuit adapted to detect faults in said high voltage circuit of said ionizer;

said high voltage circuit comprising a high voltage electrode emitter which has an emitter end for ionizing gas molecules in a vicinity of said emitter end when a high voltage is applied to said electrode emitter; and

said monitoring circuit comprising a high voltage sensing circuit for detecting the faults, said sensing circuit being capacitively coupled to said high voltage circuit at a location outside the vicinity of said emitter end.

12. (previously presented) The combination of claim 11, wherein said high voltage circuit further comprises a high voltage source for providing the high voltage, said electrode emitter being coupled to said high voltage source by an electrical connection, said sensing circuit comprising a capacitive coupling to said electrical connection between said electrode emitter and said high voltage source.

13. (previously presented) The combination of claim 11, wherein said ionizer further has a reference circuit comprising a reference electrode to which a reference voltage is applied and which is positioned adjacent said emitter end, said monitoring circuit further comprising a reference sensing circuit capacitively coupled to said reference circuit for additionally detecting faults in said reference circuit.

14. (previously presented) The combination of claim 13, wherein said reference sensing circuit includes a capacitive coupling to said reference circuit at a location outside the vicinity of

said emitter end.

15. (previously presented) The combination of claim 13, wherein  
said high voltage sensing circuit includes an ion output alarm adapted to be triggered when  
the high voltage detected in the high voltage circuit drops below a first predetermined level; and  
said reference sensing circuit includes an ion balance alarm adapted to be triggered when  
the reference voltage detected in the reference circuit drops below a second predetermined level.

16. (previously presented) The combination of claim 13, wherein the reference voltage  
is higher than ground.

17. (previously presented) The combination of claim 11, said monitoring circuit further  
comprises a control circuit coupled to said high voltage sensing circuit for controlling said ionizer  
responsive to fault detection.

18. (previously presented) In combination, an ionizer having high voltage circuits and a  
monitoring circuit adapted to detect faults in at least one of said high voltage circuits of said  
ionizer;

said monitoring circuit comprising a sensing circuit for detecting the faults, said sensing  
circuit having a capacitive coupling to said at least one high voltage circuit, wherein said capacitive  
coupling does not create a current path for charges generated by said ionizer.

19. (previously presented) The combination of claim 18, wherein said high voltage  
circuits comprise

an emitter circuit having an electrode emitter to which an emitter voltage is applied; and  
a reference circuit having a reference electrode to which a reference voltage is applied and  
which is positioned adjacent the electrode emitter, wherein said sensing circuit comprises an ion

balance sensor that has said capacitive coupling to said reference circuit.

20. (previously presented) The combination of claim 19, wherein said ionizer is a self-balancing ionizer.

21. (previously presented) The combination of claim 18, further comprising a control circuit coupled to said sensing circuit for controlling said ionizer responsive to fault detection.

22. (previously presented) The combination of claim 19, wherein said sensing circuit further comprises an ion output sensor that has another capacitive coupling to said emitter circuit, said another capacitive coupling being positioned well beyond a corona region of said emitter circuit.

23. (previously presented) The combination of claim 22, wherein said ion output sensor further has an ion output alarm and said ion balance sensor further has an ion balance alarm, said alarms being electrically connected so that a triggering of the ion output alarm disables a possible triggering of the ion balance alarm.

24. **(currently amended)** A method of detecting faults in high voltage circuits of an ionizer without affecting operation of said high voltage circuits, said method comprising the steps of:

sensing the voltage of said high voltage circuits by capacitively coupling a sensing circuit with said high voltage circuit; and

comparing the sensed voltage with a threshold voltage;

wherein ~~The method of claim 6, wherein~~ said step of capacitively coupling is performed without creating a current path for charges generated by said ionizer.

25. (canceled)

26. **(currently amended)** A method of detecting faults in high voltage circuits of an ionizer without affecting operation of said high voltage circuits, said method comprising the steps of:

sensing the voltage of said high voltage circuits by capacitively coupling a sensing circuit with said high voltage circuit; and

comparing the sensed voltage with a threshold voltage;

wherein ~~The method of claim 6, wherein~~

said high voltage circuits comprise an emitter circuit having an electrode emitter to which an emitter voltage is applied, and a reference circuit having a reference electrode to which a reference voltage is applied and which is positioned adjacent the electrode emitter; and

said sensing comprises detecting both the emitter and reference voltages.

27. (previously presented) A ionizer monitoring circuit for detecting faults in a high voltage circuit of an ionizer without affecting operation of said high voltage circuit, said monitoring circuit comprising:

sensing means for sensing a high voltage of said high voltage circuit;

coupling means for capacitively coupling said sensing means to said high voltage circuit without creating a current path for charges generated by said ionizer; and

comparing means for comparing the sensed high voltage with a threshold.

28. (previously presented) The ionizer monitoring circuit of claim 27, wherein

said high voltage circuit comprises an emitter circuit having an electrode emitter to which a higher, emitter voltage is applied, and a reference circuit having a reference electrode to which a lower, reference voltage is applied and which is positioned adjacent the electrode emitter; and

said sensing means comprise first and second separate sensing means for detecting the

emitter and reference voltages, respectively; and

said comparing means comprise first and second separate comparing means for comparing the detected emitter and reference voltages to first and second threshold, respectively.